Tuesday, February 27, 2018
HELIOPHYSICS: EXTERNAL PAYLOADS
1:00 p.m. Douglas Fir Meeting Room

Chairs: **Edward DeLuca**
Sabrina Savage

1:00 p.m. Savage S. * DeLuca E. Cheimets P. Golub L. Kobayashi K. McKenzie D. Rachmeler L. Winebarger A.
CisLunar Interchangeable Observatory for Heliophysics (CLIOH): A Deep Space Gateway Solar Viewing Platform for Technology Development and Research Payloads **[#3061]**
The Deep Space Gateway offers an unparalleled opportunity to test and operate solar instrumentation in a radiation hard environment, which can be achieved via an external pointing platform designed to accommodate multiple interchangeable payloads.

1:15 p.m. Cooper J. F. * Habbal S. R. Stubbs T. J. Glenar D. A.
Lunar Solar Origins Explorer (LunaSOX) for the Deep Space Gateway **[#3038]**
A solar telescope on Deep Space Gateway in lunar orbit could provide unprecedented brightness and spatial resolution for measurements of complex structures and small-scale features in the inner solar corona by using the lunar limb for occultation.

1:25 p.m. Newmark J. S. * Davila J. M.
Solar Coronagraphs from the DSG **[#3079]**
A solar coronagraph mounted on the Deep Space Gateway will enable unprecedented observations of the low solar corona; in particular provide key observational constraints on the initiation of Coronal Mass Ejections (CMEs).

1:35 p.m. Dennis B. R. Christe S. D. Shih A. Y. Holman G. D. Emslie A. G. Caspi A. *
Solar X-Ray and Gamma-Ray Imaging Spectroscopy **[#3186]**
X-ray and gamma-ray Sun observations from a lunar-based observatory would provide unique information on solar atmosphere thermal and nonthermal processes. EUV and energetic neutral atom imaging spectroscopy would augment the scientific value.

1:45 p.m. Provornikova E. P. * Izmodenov V. V. Laming J. M. Strachan L. Wood B. E. Katushkina O. A. Ko Y.-K. Tun Beltran S. Chakrabarti S.
Diagnostics of the Solar Wind and Global Heliosphere with Lyman-α Emission Measurements **[#3154]**
We propose to develop an instrument measuring full sky intensity maps and spectra of interplanetary Lyman- α emission to reveal the global solar wind variability and the nature of the heliosphere and the local interstellar medium.

1:55 p.m. Kontar E. P. * Emslie A. G.
Radio Imaging Spectroscopy of Physical Processes in the Inner Heliosphere **[#3185]**
Radio observations below ~100 MHz made using an array of small radio antennae on the lunar surface can provide unique insight into non-thermal processes in the corona and heliosphere. Such an array fits within reasonable weight, power, telemetry, and cost constraints.

2:05 p.m. DISCUSSION

2:15 p.m. BREAK

2:25 p.m. Paxton L. J. *
Imaging Geospace from Cis-Lunar Orbit **[#3098]**
I will discuss far ultraviolet remote sensing of the geospace environment from a platform in near-Earth space — in particular one in a cis-lunar orbit. I will discuss simple instrument designs that could be used to provide a low-cost solution.

2:40 p.m. Chua D. H. Socker D. G. Englert C. R. Carter M. T. Plunkett S. P. *
Korendyke C. M. Meier R. R.
Global Magnetospheric Imaging from the Deep Space Gateway in Lunar Orbit **[#3161]**
We propose to use the Deep Space Gateway as an observing platform for a magnetospheric imager that will capture the first direct global images of the interface between the incident solar wind and the Earth's magnetosphere.

2:50 p.m. Waldrop L. * Immel T. Clarke J. Fillingim M. Rider K. Qin J.
Bhattacharyya D. Doe R.
Geocoronal Imaging from the Deep Space Gateway **[#3134]**
UV imaging of geocoronal emission at high spatial and temporal resolution from deep space would provide crucial new constraints on global exospheric structure and dynamics, significantly advancing models of space weather and atmospheric escape.

3:00 p.m. Sibeck D. G. * Collier M. R. Porter F. S.
Observing the Magnetosphere in Soft X-Rays: The Lunar X-Ray Observatory (LXO) **[#3019]**
Wide field-of-view soft X-ray imagers in lunar orbit or on the lunar surface can be used to address many heliophysics objectives, including the nature of the solar wind magnetosphere-interaction, the lunar exosphere, and the helium focusing cone.

3:10 p.m. Halekas J. S. * Poppe A. R.
Monitoring the Outflow of Matter from the Earth and the Moon from the Deep Space Gateway **[#3106]**
The Deep Space Gateway provides an ideal vantage point from which to monitor the outflow of matter from the Earth and the Moon.

3:20 p.m. DISCUSSION

3:40 p.m. BREAK